



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/068,364	02/08/2002	Bradley R. Ringeisen	82,621	6047
26384	7590	11/26/2004	EXAMINER	
<b>NAVAL RESEARCH LABORATORY</b> ASSOCIATE COUNSEL (PATENTS) CODE 1008.2 4555 OVERLOOK AVENUE, S.W. WASHINGTON, DC 20375-5320				FULLER, ERIC B
		ART UNIT		PAPER NUMBER
		1762		
DATE MAILED: 11/26/2004				

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>
	10/068,364	RINGEISEN ET AL.
	<b>Examiner</b>	<b>Art Unit</b>
	Eric B Fuller	1762

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 08 September 2004.
- 2a) This action is **FINAL**.                                   2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-18 and 21-44 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-18, 21-25 and 27-44 is/are rejected.
- 7) Claim(s) 26 is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:
  1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
 Paper No(s)/Mail Date \_\_\_\_\_.
- 4) Interview Summary (PTO-413)  
 Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: \_\_\_\_\_.

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-7, 13-18, and 22-25, 27-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Joyce, Jr. et al. (US 5,292,559) in view of Bills et al. (US 5,308,737), in further view of Baer et al. (US 6,495,195 B2) and Mayer (US 6,159,832).

Joyce teaches a pulsed laser deposition process for depositing electrically conductive materials on to a transparent, flexible polymer or quartz, substrate that uses the same configuration as the applicant, i.e. laser through back of transparent substrate (column 2, lines 59-65). The laser is computer controlled and is directed through an objective (column 4, lines 6-31). It is taught that a multi-layered composite material that is deposited on the transparent substrate comprises a matrix material (the polymer) and a transfer material (the composite metal). The matrix material has the property of being desorbed from the support when exposed to the laser (abstract). The material being transferred and deposited is a composite (abstract). A gap exists between the target substrate and the receiving substrate (figures). Since the reference teaches the matrix and

transfer materials as separate layers, the reference fails to explicitly teach that the composite is a mixture. However, Bills teaches the equivalence between supplying the matrix and transfer materials as separate layers or as a single blended layer (column 4, lines 10-20). From this, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to supply the matrix and transfer materials as a single blended layer. By doing so, one would have a reasonable expectation of success, as Bills teaches the art recognized suitability of supplying the matrix and transfer materials as a single blended layer.

Joyce teaches the limitations of claim 1, as shown above, but fails to explicitly teach depositing biomaterials. However, Baer teaches a process of laser transferring biomaterials by a process that uses a similar transparent substrate and composite layer as taught by Joyce (column 2, lines 25-54). It would have been obvious at the time the invention was made to a person having ordinary skill in the art to deposit biomaterials by the process taught by Joyce. By doing so, one would have a reasonable expectation of success as the process taught by Joyce is independent of transfer material, due to the matrix material causing the transfer, and Baer teaches a similar process that transfers biomaterials.

The references above are silent to forming a microarray. However, Mayer teaches that by using ultra-fast lasers pulses, high resolution and precision is achieved (abstract; column 5, lines 1-26). It would have been obvious at the time the invention was made to a person having ordinary skill in the art to utilize ultra-

fast last pulses. By doing so, higher resolution and precision is achieved. The pattern deposited by the ultra-fast laser reads on being a microarray.

Claims 8-12 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Joyce, Jr. et al. (US 5,292,559), Bills et al. (US 5,308,737), Baer et al. (US 6,495,195 B2), and Mayer (US 6,159,832), as applied to claim 1 above, and further in view of Ross (US 5,743,560).

Joyce, in view of Bills, Baer, and Mayer, teaches the limitations of claim 1, as shown above, but fails to explicitly teach machining the substrate with the laser. However, Ross teaches laser machining of substrates is that is performed in order to achieve design features. For glass substrates, the machining is performed after the coating, due to the powerful laser required to perform such a process. For non-glass substrates, the machining is performed before the coating (column 2, lines 4-43). It would have been obvious at the time the invention was made to a person having ordinary skill in the art to utilize the laser machining taught by Ross in the process taught by Joyce, in view of Bills, Baer, and Mayer. By doing so, design features are achieved. To perform the machining prior to or after the coating would have been obvious depending on the substrate that is used, as taught by Ross. To machine with the same laser used in transfer or a different laser would have been equally obvious, as the choice between which laser to use is not critical to the success of the process. Deposition on a machined substrate, reads on the substrate being non-planar, as pertinent to claim 21.

***Allowable Subject Matter***

Claim 26 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: Applicant's arguments have been convincing for this claim. Specifically, Applicant argues that the pressure force of Joyce would render an active biomaterial inactive on the receiving substrate. This has been found convincing. The prior art fails to teach, or make obvious, a laser transfer of living or active biomaterials where the biomaterial is living or active on the receiving substrate after transfer.

***Terminal Disclaimer***

The terminal disclaimer disclaiming the terminal portion of any patent granted on this application that would extend beyond the expiration date of Application Number 10/068,315 has been reviewed and is accepted. The terminal disclaimer has been recorded.

***Response to Arguments***

Applicant argues that Joyce fails to anticipate the claims as they have been amended. Examiner agrees and has withdrawn the rejections of the

previous Office Action accordingly. Applicant's arguments are moot in view of the new grounds of rejection.

Applicant argues that the laser of Joyce would be too powerful for transferring biomaterials, as the laser would damage them. This argument is not found convincing. Baer teaches a laser absorbing material that absorbs the energy of the laser instead of the transfer material in order to keep the transfer material from being damaged. Joyce possesses a laser absorbing material as well. Since Baer teaches that laser absorbing materials keep the transfer material from being damaged, it is believed that the laser absorbing material in Joyce would do the same.

Applicant's arguments with respect to claim 26 have been found convincing, as indicated above.

### ***Conclusion***

Applicant's amendment necessitated the new grounds of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory

action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric B Fuller whose telephone number is (571) 272-1420. The examiner can normally be reached on Mondays through Thursdays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shrive P Beck, can be reached on (571) 272-1415. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



EBF



SHRIVE P. BECK  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 1700